

WHAT IS CLAIMED IS

1. A fluorinated zinc-silicate glass having a composition comprised essentially, in molar percent, of about 50 to 69% SiO₂, 0 to 13% B₂O₃, 2 to 6.50% Al₂O₃, 0 to 3.90% AlF₃, 10.40 to 17% Na₂O, 0 to 3% NaF, 0 to 18% ZnO, 0 to 3.20% ZrO₂, 0 to 0.80% MgO, 0 to 0.66% BaO, 0 to 6.72% CaO, 0 to 0.075% Sb₂O₃, and 0.08 to 0.11% As₂O₃.
2. The fluorinated zinc-silicate glass of claim 1, wherein said composition further includes in weight percent about 0 to 1 wt% CaF₂.
3. The fluorinated zinc-silicate glass of claim 1, wherein said NaF and said AlF₃ provide between about 0 and about 12.8 molar percent fluorine.
4. The fluorinated zinc-silicate glass of claim 1, wherein the glass has a refractive index at 632.8 nm of between 1.512 and 1.541, and a refractive index at 587.6 nm of between 1.514 and 1.544.
5. The fluorinated zinc-silicate glass of claim 1, wherein said Na₂O provides a Na ion species for ion-exchange processes, whereby the zinc-silicate glass is a single exchangeable alkali ion glass.
6. An optical article fabricated in a planar slab of a fluorinated zinc-silicate glass by an ion-exchange process, the zinc-silicate glass characterized by having a single alkali ion species for said ion-exchange.
7. The optical article of claim 6, wherein said zinc-silicate glass is further characterized by having a composition comprised essentially, in molar percent, of about 50 to 69% SiO₂, 0 to 13% B₂O₃, 2 to 6.50% Al₂O₃, 0 to 3.90% AlF₃, 10.40 to 17% Na₂O, 0 to 3% NaF, 0 to 18% ZnO, 0 to 3.20% ZrO₂, 0 to 0.80% MgO, 0 to 0.66% BaO, 0 to 6.72% CaO, 0 to 0.075% Sb₂O₃, and 0.08 to 0.11% As₂O₃.

8. The optical article of claim 7, wherein said glass is further characterized by having a refractive index at 632.8 nm of between 1.512 and 1.541, and a refractive index at 587.6 nm of between 1.514 and 1.544.

5 9. The optical article of claim 7, wherein said single exchangeable alkali ion is a sodium ion.

10 10. The optical article of claim 9, wherein said ion-exchange process includes exchanging silver for said sodium in defined areas of said glass.

11. The optical article of claim 10, wherein said ion-exchange provides an optical waveguiding path characterized by an increased refraction index relative to areas surrounding said path.

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